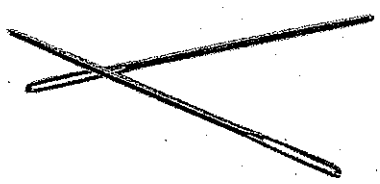
Dropouts: Finding the Needles in the Haystack

Which students are in danger of dropping out? Accurate data can help schools find these students and keep them in school.

Eric Sparks, Janet L. Johnson, and Patrick Akos

It's not news—U.S. high schools are facing a dropout crisis. Although official estimates vary, a growing consensus has emerged that only about 7 in 10 students successfully complete high school (Stillwell & Hoffman, 2008; Swanson, 2008). Those who drop out face the prospect of higher unemployment and incarceration rates and lower lifetime earnings (Sum, Khatiwada, Mclaughlin, & Palma, 2009).

To address this problem most effectively, schools need to know who drops out and why. The 2004 Dropout Prevention Act identifies variables that may indicate potential dropouts. These include poor attendance, low grade point average, low standardized test scores, low reading and math scores, special program placement, grade retention, discipline referrals and suspensions, low socioeconomic status, frequent school moves, teen parenthood, and certain kinds of family status (for example, coming from a single-parent family). However, the act cites no comprehensive research indicating what combination of factors actually affects a student's likelihood of dropping out (U.S. Department of Education, 2004).



Too often, schools use demographic factors to identify students who are "at risk" of failing. This practice can lead to stereotyping, delivering inappropriate services, or denying opportunities to certain student groups. Although it is well known that students in certain minority groups are more likely to drop out, individual students do not drop out because they are minorities. Other factors play a role, and data can help schools determine what those factors are.

A study we recently conducted in a large, southeastern U.S. school district attempted to identify the forces driving dropout rates so that the district could implement realistic and viable dropout prevention strategies. By identifying factors that were characteristic of students who dropped out, we hoped to help educators target dropout prevention efforts to students who needed them most.

JAMES ENDICOTT © IMAGES.COM/CORBIS

A Study of 9th Grade Dropouts

We targeted 9th grade for the study because of the research literature (Akos & Galassi, 2004; Catterall, 1998; Hertzog & Morgan, 1998) documenting the challenges students face during this transitional year. We evaluated data for the 17,735 9th grade students who attended the school district in 2003–04 and 2004–05. Of these students, 6 percent dropped out in 9th grade. We intentionally did not report demographic attributes of these 9th grade dropouts, such as gender and race.

We conducted a stepwise factor analysis to determine which academic and behavioral variables would best predict dropping out. After performing tests of statistical significance, we identified as risk factors any variables that were statistically more common among the population who dropped out, compared with the population who did not drop out.

Race, socioeconomic status, and other demographic data are not accurate indicators of dropout risk.

Risk Factors: The Big 3

Initially, we found nine risk factors among the two groups. Several of these risk factors were highly correlated with one another. (For example, *failing English I* and *scoring below grade level on grade 8 standardized reading tests* were highly correlated with *being retained in 9th grade.*) To simplify the analyses, we removed some of the highly correlated indicators, which left us with three factors that were significantly ($p < .001$) more associated with 9th grade dropouts than with the overall student population. We referred to these factors as the Big 3:

Being retained in any grade, kindergarten through 9th grade. We found that 60.9 percent of 9th grade dropouts had been retained at some point during their schooling, compared with 8.2 percent of students who did not drop out. Of the retained students who dropped out, 42.3 percent had also failed the English I standardized test.

Scoring below grade level on the North Carolina end-of-grade math test in 8th grade or failing Algebra I. About one-third (33.7 percent) of 9th grade dropouts scored below grade level on the grade 8 standardized math test, compared with 15.4 percent of nondropouts. About one-fourth (26 percent) of 9th grade dropouts failed Algebra I, compared with fewer than 12 percent of the nondropouts.

Receiving a long-term suspension. More than one-third (35.2 percent) of 9th

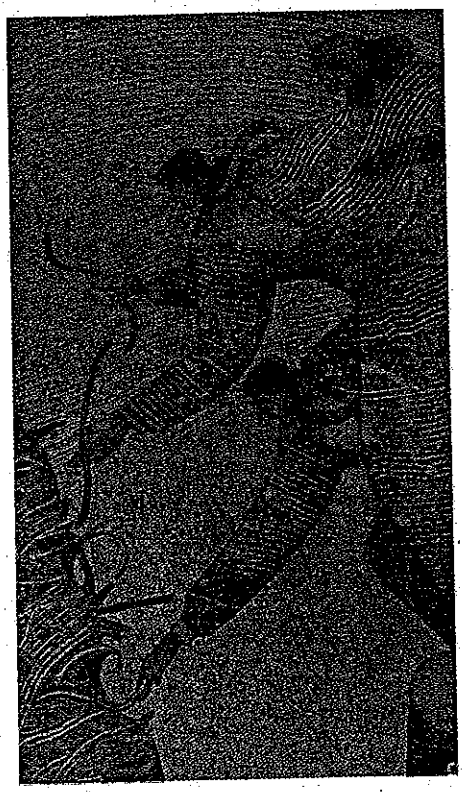
grade dropouts had received a suspension of more than 10 days in either 8th or 9th grade, compared with only 2.4 percent of students who did not drop out; 74.3 percent of the long-term suspended students who dropped out had also been suspended for a short term.

The data showed that of all 9th graders in the school district, 23 percent had one or more of the Big 3 risk factors. Of all the students who dropped out in 9th grade, 84 percent had one or more of the risk factors. Students who dropped out in 9th grade and who had at least one of the risk factors represented 5 percent of all 9th graders; dropouts who had none of the risk factors represented only 1 percent of all 9th graders.

More Needles, Smaller Haystacks

The purpose of the study was to produce data that would help school counselors and other educators find and serve the students who were at highest risk of dropping out. The survey found that 6 percent of the district's 17,735 9th grade students dropped out. Without any data to point the way, trying to identify these students in advance would be the equivalent of looking for a few needles in a large, 17,735-student haystack.

Our task becomes easier, however, if we divide the haystack into two parts on the basis of whether students have any of the Big 3 risk factors. The haystack with the students who have no risk factors has 13,638 students, but only



1 percent of the students in this haystack dropped out. The haystack with the students who have at least one of the risk factors has only 4,097 students, and 21 percent of the students in this haystack dropped out. Clearly, it would be easier to find the needles in the smaller haystack. This is a better place to target dropout prevention efforts.

What Interventions Make a Difference?

In addition to providing information about the students who would be most likely to benefit from dropout prevention efforts, our study provided guidance about which interventions would be most likely to help.

Our analysis of the data showed that even students with one or more of the risk factors are more likely to stay in school than to drop out. (79 percent of them did not drop out.) We examined the population of students with the risk factors who did *not* drop out and found that they were not randomly distributed across the school district. The dropout rate for 9th grade students who had one or more of these risk factors ranged from 6 percent at one high school to 27 percent at another. When comparing schools with the highest and lowest dropout rates for these students, some patterns emerged, which point to the following interventions:

Less tracking in middle school. Students who came from middle schools that tracked students into ability-group teams for most subjects had the highest rate of 9th grade dropout. This finding suggests that grouping underperforming students together or tracking students into low-level classes may increase their likelihood of dropping out.

Participation in extracurricular enrichment. Students who had participated in after-school programs in 8th grade had lower dropout rates, regardless of which high school they entered. This effect varied, however, according to the type of after-school program: Programs that served a broad range of abilities and focused on promoting resiliency and supporting achievement produced greater benefits than programs that served only students who were below grade level and focused on skill remediation.

Transition programs. Some of the high schools with programs that helped students ease the transition into 9th grade also had lower dropout rates for students with risk factors.

The variability of results for students

EL *online*

For another approach to assisting potential dropouts, see the online-only article "Helping Dropouts Drop Back In" at www.ascd.org/publications/educational_leadership/feb10/vol67/num05/Helping_Dropouts_Drop_Back_In.aspx.

with these risk factors suggested that some programs, services, and structures are effective for reducing the 9th grade dropout rate. However, no causal relationship could be shown by examining data from past programs. Moving forward, school staff, led by the school counselors, began to use these results with data-driven decision models so that they could better focus their efforts and document effective practices.

Translating Data into Action

After we shared our results with the school system, several of the high schools initiated programs to reduce 9th grade dropout rates. When they examined data on students who were currently being served by dropout prevention programs, they found that most of the students had none of the Big 3 risk factors. Instead of using data-informed rationales, these schools may have been selecting students on the basis of demographic information because of the perception that low-income and minority students were likely to drop out. In response to our study, they restructured their programs to serve students with the Big 3 risk factors.

At one high school, a team of educators targeted 9th graders with at least two of the risk factors. They found that most of the students had failed both English I and the first part of Algebra I, and many had discipline problems or previous retention issues. After removing from the list students who were already in special programs, they targeted 24 students. The educators revised a tutorial program to address these students' problems, with a reward system for attendance, punctuality, and academic improvement.

The school counselor also worked with the students. Knowing that research indicates that having 10 positive contacts with resistant students often changes their attitudes and wins their trust (Johnson, Sparks, Lewis, Hall, & Johnson, 2006), the counselor persevered with the students and developed positive relationships with them. Eventually, many of the students began to seek her out when they wanted extra help. For many, their attitudes, previously described as lethargic or negative, turned around. More important, 21 of the 24 students passed their English and Algebra I courses and their end-of-course tests. These 21 students were all promoted to 10th grade.

Without any data to point the way, trying to identify potential dropouts in advance would be the equivalent of looking for a few needles in a large haystack.

A Better Way

The three risk factors we discovered in our study provide an objective way of determining who is at risk of dropping out. Race, socioeconomic status, and other demographic data are also objective, but they are not accurate indicators of dropout risk and should not be regarded as such. Putting minority and low-income students in programs designed to improve educational or behavioral problems that they do not have may do more harm than good.

References

Akos, P., & Galassi, J. P. (2004). Middle and high school transitions as viewed by students, parents, and teachers. *Professional School Counseling, 7*, 212–221. Available: www.schoolcounselor.org/files/7-4-212%20Akos.pdf

Catterall, J. S. (1998). Risk and resilience in student transitions to high school. *American Journal of Education, 106*(2), 302–333.

Hertzog, C. J., & Morgan, P. L. (1998). Breaking the barriers between middle school and high school: Developing a transition team for student success. *NASSP Bulletin, 82*(597), 94–98.

Johnson, J. L., Sparks, E., Lewis, R. G., Hall, M., & Johnson, J. (2006). Effective strategies for supporting long-term suspended students. *School Counselor, 9*(3), 261–264.

Stillwell, R., & Hoffman, L. (2008). *Public school graduates and dropouts from the common core of data: School year 2005–06* (NCES 2008-353rev). Available: http://nces.ed.gov/pubs2008/2008353rev.pdf

Sum, A., Khatiwada, I., Mclaughlin, J., & Palma, S. (2009). *The consequences of dropping out of high school.* Boston: Center for Labor Market Studies, Northeastern University. Available: www.clms.neu.edu/publication/documents/The_Consequences_of_Dropping_Out_of_High_School.pdf

Swanson, C. B. (2008). *Cities in crisis: A special analytic report on high school graduation.* Available: www.edweek.org/media/citiesincrisis040108.pdf

U.S. Department of Education. (2004). *No Child Left Behind, Part H: Dropout Prevention Act.* Available: www.ed.gov/policy/elsec/leg/esea02/pg15.html

Eric Sparks is Director of Counseling Services, Wake County Public Schools, Raleigh, North Carolina; esparks@wcpss.net. **Janet L. Johnson** is President and Founder of EDSTAR, a private consulting firm in Raleigh, North Carolina; janet@edstar.biz. **Patrick Akos** is Associate Professor, School of Education, University of North Carolina at Chapel Hill; pta@unc.edu.